Program Creation Process Check List

Type of Fugrant:		name(s): K. Allison Lenkelt Meezan
Type of Award. Non-transcriptable certificate X Certificate of Achievement AA/AS Degree Documentation checklists: Transfer documentation X Catalog Description X List of Courses X Articulation & transfer data X Completer Projections X Identification of existing program(s) at X Completer Projections X Identification of any additional X resources needed to establish program Identification of any additional resources needed to establish program Identification of any additional resources needed to establish program Identification of any additional resources needed to establish program Identification of any additional resources needed to establish program Identification of any additional resources needed to establish program Identification of any additional resources needed to establish program Identification of any additional resources needed to establish program Identification of any additional resources needed to establish program Identification of any additional resources needed to es	Type of Program: Transfer of	or X Workforce
More datase transfer X Certificate of Achievement AA/AS Degree Documentation checklists: Transfer documentation Catalog Description List of Courses Articulation & transfer data Identification of existing program(s) at Completer Projections Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) Transfer/Workforce Work Group Comments/Recommendations: Accomment More Group Signature: Work Group Signature: Work Group Signature: Work Group Signature: Must a Signature: Work Group Signature: Must a Signature: Work Group Signature: Must a Signature: <t< th=""><th>Non-transcriptable certificate</th><th></th></t<>	Non-transcriptable certificate	
AA/AS Degree Documentation checklists: Transfer documentation Catalog Description List of Courses Articulation & transfer data Identification of existing program(s) at CSU/UCs Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) Transfer/Workforce Work Group Comments/Recommendations: Accomment More Group Signature: Work Group Signature: Work Group Signature: Mug b ecupation	X Certificate of Achievement	
Documentation checklists: Transfer documentation Catalog Description List of Courses Articulation & transfer data Identification of existing program(s) at CSU/UCs Completer Projections Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) Transfer/Workforce Work Group Comments/Recommendations: Accomposition Work Group Signature: Must A secource Comments/Recommendations: Group Signature: Must A Vice President Signature: Must A Vice President Signature: Must A Vice President Signature: Must A Vice President Signature: Must A Vice President Signature: Must A Vice President Signature: Must A Vice President Signature: Must A <th>AA/AS Degree</th> <th></th>	AA/AS Degree	
Documentation checklists: Workforce documentation Catalog Description X List of Courses X Articulation & transfer data X Identification of existing program(s) at X Completer Projections X Identification of any additional X resources needed to establish program i.e. faculty, equipment, etc. Transfer/Workforce Work Group Comments/Recommendations: Consider after Work Group Signature: Multicomments/Recommendations: Work Group Signature: Multicomments/Recommendations: Growng & compatibility Recommendations: Date: Its of courses Date: Vice President Signature: Multicomments/Recommendations: Vice President Signature: Mark Multicomments/Recommendations: Date: Or President Signature: Mark Multicomments/Recommendations: Date: Growng & compatibility Date: Mark Date: Date: Called Signature: Mark Date: Date: Called Signature: Mark Date: Dat		
Transfer documentation Workforce documentation Catalog Description X List of Courses X Articulation & transfer data X Completer Projections X Identification of existing program(s) at CSU/UCs X Completer Projections X Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) X Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) X Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) X Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) X Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) X Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) X Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) X Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) X Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) X Work Group Signature: Muther there there there there t	Documentation checklists:	
Catalog Description List of Courses Articulation & transfer data Identification of existing program(s) at CSU/UCs Completer Projections Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) Transfer/Workforce Work Group Comments/Recommendations: Recommend for Parc's consideration Work Group Signature: Work Group Signature: Work Group Signature: Work Group Signature: Multiple President Comments/Recommendations: Growing D ecupational Multiple President Comments/Recommendations: Growing D ecupational Multiple President Signature: Vice President Signature: Multiple President Sig	Transfer documentation	Workforce documentation
List of Courses Articulation & transfer data Identification of existing program(s) at CSU/UCs Completer Projections Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) Transfer/Workforce Work Group Comments/Recommendations: Recommend for Paces consideration Work Group Signature: Work Group Signature: Multiculation Comments/Recommendations: Growing Decupational Vice President Signature: Vice President Signature: Vice President Signature: Multiculation States Comments/Recommendations: Commendations: Commendations: Commendations: Commendations: Commendations: Commendations: Commendations: Commendations: Commendati	Catalog Description	X Catalog Description
Articulation & transfer data Identification of existing program(s) at CSU/UCs Completer Projections Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) Transfer/Workforce Work Group Comments/Recommendations: Recommend Work Group Signature: Work Group Signature: Multiculation Comments/Recommendations: Growng D ecupational resources . Vice President Signature: Multiculation of any additional resources needed to establish program (i.e. faculty, equipment, etc.) Date: 12/12/13 Date: 12/12/13 Date: 12/12/13 Date: 12/12/13 Date: 12/12/13 Planning & Resource Committee Comments/Recommendations: Planning & Resource Committee Comments/Recommendations: Multiculation of any additional Recommendations: Date: 12/1613 Date: 12/1613 Planning & Resource Committee Comments/Recommendations:	List of Courses	X List of Courses
Identification of existing program(s) at CSU/UCsXLabor Market information XCompleter ProjectionsXIdentification of any similar program(s) in the areaIdentification of any additional resources needed to establish program (i.e. faculty, equipment, etc.)XIdentification of any additional resources needed to establish program (i.e. faculty, equipment, etc.)Transfer/Workforce Work Group Comments/Recommendations: Recommend Work Group Signature:XIdentification of any additional resources needed to establish program (i.e. faculty, equipment, etc.)Work Group Signature:Mund Particle President Comments/Recommendations: GrowMg D comparison Vice President Signature:Date:Vice President Signature:Mund ParticleDate:Vice President Signature:Mund ParticleDate:Vice President Signature:Mund ParticleDate:Vice President Signature:Mund ParticleDate:Mund Planning & Resource Committee Comments/Recommendations: Planning & Resource Committee Comments/Recommendations:Date:	Articulation & transfer data	X Completer Projections
CSU/UCs X Identification of any similar program(s) in the area Mathematication of any additional resources needed to establish program (i.e. faculty, equipment, etc.) X Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) Transfer/Workforce Work Group Comments/Recommendations: X Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) Transfer/Workforce Work Group Comments/Recommendations: X Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) Work Group Signature: Mathematication for Path C s Consideration for Path C s Work Group Signature: Mathematication for Path C s Consideration for Path C s Supervising Vice President Comments/Recommendations: Growng b ecupation wide, wide, wide have applicating tessources . Vice President Signature: Mathematication for Path C s Date: 12/12/13 Vice President Signature: Mathematication for Path C s Date: 12/16/13 Planning & Resource Committee Comments/Recommendations: Date: 12/16/13	Identification of existing program(s) at	X Labor Market information
Completer Projections in the area Identification of any additional in the area Yesources needed to establish program Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) Transfer/Workforce Work Group Comments/Recommendations: Identification of any additional Recommend Approval for Work Group Signature: Mund Date: 12/12/13 Supervising Vice President Comments/Recommendations: Date: 12/12/13 Work Group Signature: Mund Date: 12/12/13 Supervising Vice President Comments/Recommendations: Date: 12/12/13 Vice President Signature: Mund Date: 12/12/13 Vice President Signature: Mund Date: 12/12/13 Planning & Resource Committee Comments/Recommendations: Date: 12/10/13	CSU/UCs	X Identification of any similar program(s)
Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.) Transfer/Workforce Work Group Comments/Recommendations: Recommend Approval for Palic's consideration Work Group Signature: Much Approval for Palic's consideration Work Group Signature: Much Approval for Palic's consideration Wice President Signature: Date: (J-116-13) Planning & Resource Committee Comments/Recommendations:	Completer Projections	in the area
resources needed to establish program (i.e. faculty, equipment, etc.) resources needed to establish program (i.e. faculty, equipment, etc.) resources needed to establish program (i.e. faculty, equipment, etc.) Transfer/Workforce Work Group Comments/Recommendations: Recommend Approval for Paric's consideration Work Group Signature: Much Ama Date: 12/12/13 Supervising Vice President Comments/Recommendations: Growing Decupational wead, # we have existing resources. Vice President Signature: May Date: 12-11613 Planning & Resource Committee Comments/Recommendations:	Identification of any additional	X Identification of any additional
(i.e. faculty, equipment, etc.) (i.e. faculty, equipment, etc.) Transfer/Workforce Work Group Comments/Recommendations: Recommend Approval for Pake's consideration Work Group Signature: Work Group Signature: Wice President Signature: Wice President Signature: May Date: D	resources needed to establish program	resources needed to establish program
Transfer/Workforce Work Group Comments/Recommendations: Recommend Approval for Parcis consideration Work Group Signature: Much and Date: 12/12/13 Supervising Vice President Comments/Recommendations: Growing Decupational need, & we have excision resources. Vice President Signature: Much Date: 12-16-13 Planning & Resource Committee Comments/Recommendations:	(i.e. faculty, equipment, etc.)	(i.e. faculty, equipment, etc.
Work Group Signature: Mutter Gunder Gunder Date: TC/TC/TS Supervising Vice President Comments/Recommendations: Growing & comparison with the sources of the source comments/Recommendations: Date: 1/2/16/13 Vice President Signature: Image:	Recommend Approval	$\int_{\mathcal{N}} p_{\rm dis} \left[\frac{1}{2} \right] \frac{1}{2} \frac{1}{2}$
Supervising Vice President Comments/Recommendations: Growing & coupational weed, & we have aroisting resources. Vice President Signature: ICAM Date: 12-16-13 Planning & Resource Comments/Recommendations:	Work Group Signature: White She	Date: 12/12/15
Growing Decupational Match, and When Date Dates Vice President Signature: Image: Ima	Supervising Vice President Comments/Recommendation	nendations:
Vice President Signature: MM Date: (2-16-13 Planning & Resource Comments/Recommendations:	Growing o coupational here	, a we have - find ?
Vice President Signature: Image: Comparison of the second sec		
Planning & Resource Committee Comments/Recommendations:	resources.	
	Vice President Signature:	Date: (2-16-13
	Vice President Signature: ICM Planning & Resource Committee Comments/Re	Date: [J-16-13 ecommendations:
	Vice President Signature: ICM Planning & Resource Committee Comments/Re	Date: (2-16-13 ecommendations:
	Vice President Signature: ICM Planning & Resource Committee Comments/Re	Date: (J-16-13 ecommendations:
PaRC Signature: Date:	Vice President Signature: ICAM Planning & Resource Committee Comments/Re	Date: (J-16-13 ecommendations:

Division CC Signature:

Date:

Following the review by the listed committees, this form should be forwarded to the Office of Instruction. 12/2/13

FOOTHILL COLLEGE Credit Program Narrative Certificate of Achievement in Geographic Information Systems Technology

Item 1. Program Goals and Objective

The goals of this program are to graduate students who are competent users and creators of geospatial technology and provide the opportunity for graduates to gain skills necessary to advance in their careers. This program will prepare students to apply for professional certification (GISP) through the GIS Certification Institute (administered through the Urban and Regional Information Systems Association) Following completion of the program, the graduate will be able to

- 1. Apply cartographic principles of scale, resolution, projection and data management to a problem of a geographic nature using a GIS.
- 2. Plan, evaluate and execute an original GIS project
- 3. Demonstrate the ability to communicate, orally, in writing, and graphically, the outcome of GIS analysis.
- 4. Demonstrate an awareness of professional obligations to society, employers and funders and individuals as outlined in the GIS Professional Certification Institute Code of Ethics

Item 2. Catalog Description

Geospatial technology is the unifying tool with which spatial phenomena is explored. Geospatial technology consists of Geographic Information Systems (GIS), Global Positioning Systems (GPS) and Remote Sensing (RS). The Geographic Information Systems Technology program at Foothill College provides opportunities for career preparation and lifelong learning by providing courses that meet workforce needs. Geographic Information Systems (GIS) are collections of computers, software applications, and personnel used to capture, store, transform, manage, analyze, and display spatial information. GIS skills are highly desirable in agriculture, archaeology, business, cartography, government, law enforcement, marketing, oil and gas, real estate and urban planning. The Geographic Information Systems Technology Certificate of Achievement III provides a solid technical background in GIS concepts and applications of the technology. The outcomes of the certificate align with the Department of Labor geospatial competency model for geospatial careers. Completion of the certificate requires practical work experience in GIS. The The Geographic Information Systems Technology Certificate of Achievement III provides a Solid technology Certificate of Achievement III provides a solid technical background in Achievement model for geospatial careers. Completion of the certificate requires practical work experience in GIS. The The Geographic Information Systems Technology Certificate of Achievement III prepares students for entry-level GIS technician jobs.

SAMPLE A.A. Administration of Justice						
Requirement s	Dept. Name/#	Name	Units	CS U- GE	IGETC	Sequence
Required	ADMJ 50	Introduction to Justice	3	A1	Area 1	Yr 1, Fall
Core (6 units)	ADMJ 60	Criminal Law	3	B2	Area 4	Yr 2, Spring
Two courses	ADMJ 40	Juvenile Justice	3		And Internet	Yr 1, Fall
(6 units)	ADMJ 55	Procedures	3	S. S. S.	Area 2	Yr 2, Spring
的法法法法法律	ADMJ 61	Introduction to	3			Yr 2, Spring
	ADMJ 63	Correctional Science	3	A1		Yr 1, Summer
	ADMJ 70	Evidence	3			Yr 1, Fall/Spring
	ADMJ 80	Criminal Investigation	3			Yr 2, Fall/Spring
	ADMJ 85	Community Relations	3			Yr 1,
and the second second	The Real Property of	Criminal Trial Process				Spring/Summer
		Introduction to Forensics			Second Second	Yr 2, Fall
Two courses	SOC 1	Principles of Sociology	3	D6	Area 1	Yr 2, Spring
(6 units)	PSY 1	General Psychology	3	A1		Yr 1, Summer
	PSY 5	Behavioral Sciences	4			Yr 1, Fall

Item 3. Program Requirements

Requirement	Crse #	Title	Units	CSU- GE	IGETC	Sequence
Required Core	GIST 11	Introduction to Mapping & Spatial Reasoning	4			Yr 1, Fall
	GIST 12	Introduction to Geospatial Technology	4			Yr 1, Fall
	GIST 52	Geospatial Data Acquisition & Management	4			Yr 1, Winter
	GIST 53	Advanced Geospatial Technology & Spatial Analysis	4			Yr 1, Spring
	GIST 54A	Seminar in Specialized Applications of Geographic Information Systems I	2			Yr 1, Winter
	GIST 58	Remote Sensing & Digital Image Processing	3			Yr 1, Winter
	GIST 59	Cartography, Map Presentation & Design	2			Yr 1, Spring
	ITRN 50	Internship	3			Yr 1, Spring
	C S 1A	Object-Oriented Programming Methodologies in Java	5			Yr 1, Fall
Restricted	C S 21A	Programming in Python	5			Yr 1, Winter & Yr
Electives (select two)	C S 22A	Javascript for Programmers	5			2, Fall
	HORT 45	Landscape Design: Computer Applications	3			
Other	GEOG 1	Physical Geography	5			Yr 2, Fall
Electives	GEOG 2	Human Geography	4			
(select one)	GEOG 10	World Regional Geography	4			

Required Major Total TOTAL UNITS

Proposed Sequence:

Year 1, Fall = 13 units Year 1, Winter = 12-14 units Year 1, Spring = 9 units Year 2, Fall = 7-10 units TOTAL UNITS: 43-46 units

Item 4. Master Planning

Geographic Information Systems (GIS) and its associated 'GeoSpatial Technology' disciplines Global Positioning Systems (GPS) and Remote Sensing (RS) have been around for over 40 years, but have risen to prominence in the last 15 years with the advent of cheap and compact desktop computing and graphics capabilities and the declassification of many military supported data and hardware sources. Geospatial technologies are now widely integrated in information technology and asset management in a wide variety of disciplines. Geospatial Technology has moved from a subject of elite academic research to a technical skill required in a wide variety of fields.

Community colleges began offering GIS, GPS and RS coursework beginning about 15 years ago in response to this emergence of the technology as an in-demand CTE technology and job area. In 2008 the US Department of Labor listed Geospatial Technology as one of the three fastest growing technical fields, along with Biotechology and Nanotechnology. By 2016 the US Department of labor estimates that the US will need 500,000 professionals trained in Geospatial Technology.

43-46 units 43-46 units

11/18/13 cmln

Foothill College established a GIS certificate program in 2000, and has maintained a robust offering of courses and certificates. The program annually enrolls around 60 FTE students, and currently offers a series of courses culminating in a transcriptable Certificate of Achievement in Geography with a focus on GIS. The program has been updated to reflect current industry model curriculum. The additional certificates that are being applied for are shifted to the Geographic Information Systems Technology (GIST) department, based on feedback from the program's professional advisory board. These new certificates and associates degree will replace the existing Certificate of Achievement in GIS that is presently housed in the Geography department.

Item 5. Enrollment and Completer Projections

Each course has 20-35 students per course. The number of projected completers per year is 30 graduates. These figures are based on the number of students completing certificates between the years 2006 through 2012. The economy and job availability has a direct affect on enrollment. Many local employers hiring in Geospatial Technology are in the public sector which has been greatly affected by the recent economic downturn. However, many program graduates are interested in using their skills as a vehicle to move to other regions of the state and country where even in the current economy, there is a very high demand for professionals with Geospatial Technology skills.

Current employment and projections show that "green technology" trades such as Geospatial Technology are recovering faster than the local economy as a whole. According to EMSI, between 2012 and 2015 there are projected to be 511 jobs that require Geospatial Technology skills locally, and 1490 state-wide.

		Ye	ar 1	Year 2		
Course #	Course Title	Annual Sections	Annual Enrollment	Annual Sections	Annual Enrollment	
GIST 11	Introduction to Mapping & Spatial Reasoning	New for 2013	N/A	N/A	N/A	
GIST 12*	Introduction to Geospatial Technology	2	46	2	48	
GIST 52*	Geospatial Data Acquisition & Management	1	24	1	25	
GIST 53	Advanced Geospatial Technology & Spatial Analysis					
GIST 54A	Seminar in Specialized Applications of Geographic Information Systems I					
GIST 58	Remote Sensing & Digital Image Processing	1	28	1	25	
GIST 59	Cartography, Map Presentation & Design	1	30	1	27	
C S 21A	Programming in Python					
CS1A	Object-Oriented Programming Methodologies in Java					
C S 22A	Javascript for Programmers					
HORT 45	Landscape Design: Computer Applications					
GEOG 1	Physical Geography					
GEOG 2	Human Geography					
GEOG 10	World Regional Geography					

* These courses were rewritten as of 2013 based on industry model curriculum. The numbers and sections listed reflect the previous curriculum

Item 6. Place of Program in Curriculum/Similar Programs

There are currently no similar programs at Foothill College. This program fulfills a need expressed by the industry advisory board. This program is aligned with national standards, and as such will allow students to move between it and other statewide programs that also follow the national model curriculum standards.

11/18/13 cmln

The program will use college computer teaching labs and open computer labs for students to work in lab time and outside of class. This program builds upon the existing GIS certificate program with updated, industry modeled curriculum and will make more productive use of existing computer laboratory facilities in the college.

Item 7. Similar Programs at Other Colleges in Service Area

There are no other colleges within reasonable commuting distance that offer a similar program. Diablo Valley College (65 miles away) is the only other regional college that offers a transcriptable certificate in Geospatial Technology. The Geospatial Technology program at Foothill has worked closely with the GIS programs at Diablo Valley College and City College of San Franciso (the only two regional colleges with similar programs) through the Bay Area Automated Mapping Association (BAAMA), the regional professional body, to insure that the programs complement each other.